

REMARKS

Claims 1-3, 5-21 and 34 are pending. Claims 22-33 are cancelled without prejudice in response to a restriction requirement. Claim 4 is herein cancelled without prejudice, as well. Claims 1, 6, 14, 15, 2, 21 and 36 are herein amended. Applicants submit that the amendments do not add new material to the current Application. No amendment made is related to the statutory requirements of patentability unless expressly stated herein. No amendment made is for the purpose of narrowing the scope of any claim, unless Applicants argue herein that such amendment is made to distinguish over a particular reference or combination of references. Moreover, claims 15 and 21 are amended only so that they are rewritten to flow properly with the amendments made to independent claims 14 and 20, respectively. The scope of claims 15 and 21 is not narrowed.

Applicants respectfully submit that (amended) claims 6 and 34 particularly point out and distinctly claim the subject matter that Applicants regard as the invention. As amended herein, claims 6 and 34 explicitly state that a first portion of the second layer is over the first layer and a second portion of the second layer is under an edge of the first layer. It is clear as to the scope of the claims because the portions of the second layer are defined. Applicants submit that claims 6 and 34 are, therefore, allowable under 35 U.S.C. 112, second paragraph.

Applicants respectfully submit that claims 1-3, 5, 7, 8, 10, and 13 are patentable over Loboda (U.S. 6,268,262) under 35 U.S.C. 102(e). More specifically, Loboda fails to teach all limitations of (amended) independent claim 1, which was amended to include the limitations of claim 4. Loboda fails to teach that the second layer is less than a combined thickness of the first layer and the gap. The Examiner contends that Loboda teaches "the thickness of the second layer is less than fifty percent of that of the first layer and the gap combined." Nowhere does Loboda teach this limitation, because Loboda is silent as to the thickness of the second layer. Applicants therefore assume that the Examiner is relying upon the figures to teach the dimensions. Applicants would like to point out that it is improper to rely on Loboda's figures to teach dimensional limitations because Loboda fails to state that the figures are drawn to scale. MPEP 2125 Therefore, for at least the reasons stated above, claims 1-3, 5, 7, 8, 10, and 13 are patentable over Loboda under 35 U.S.C. 102(e).

Furthermore, claims 1 and its dependencies are not obvious with respect to Loboda. As discussed, Loboda fails to teach or suggest any thicknesses for the second layer, the first layer or

the gap. Therefore, Loboda fails to teach, suggest, or motivate a skilled artisan to that "the thickness of the second layer is less than fifty percent of that of the first layer and the gap combined." For at least this reason, claims 1 and its dependencies are patentable over Loboda in all regards.

Applicants respectfully submit that claims 14 and 18 are patentable over Loboda under 35 U.S.C. 102(e) because Loboda fails to teach or suggest claim limitations of (amended) independent claim 14, which includes a limitation of originally filed claim 15. More specifically, Loboda fails to teach "a gap exists between a portion of the airbridge and the first electrically insulative layer." In contrast, Loboda's first electrically insulative layer 11 is *in contact with* the airbridge 12. Loboda forms a conformal layer 11 and then patterns the conformal layer 11 to form the first electrically insulative layer 10 over conductors 6 and sacrificial material 9. The airbridge 12 is formed over and in contact with the first insulative layer 10 (FIGs. 8-10). Therefore, no gap exists between the first electrically insulative layer 10 and the airbridge 12. For at least this reason, claims 14 and all dependent claims are allowable over Loboda under 35 U.S.C. 102(e).

Furthermore, Applicants submit Loboda fails to suggest or motivate one that "a gap exists between a portion of the airbridge and the first electrically insulative layer." Loboda teaches that a gap exists *under* the first electrically insulative layer 10 and over the substrate, because the sacrificial material 9 is removed to form the gap, as shown in FIG. 10. The purpose of the first electrically insulative layer 10 is to "encapsulate[s] the sacrificial material." (Column 4, lines 25-26). Therefore, if the gap in Loboda is between the first electrically insulative layer 10 and the airbridge 12 instead of between the first electrically insulative layer 10 and the substrate as in Loboda, the functionality of Loboda would be destroyed because the first electrically insulative layer 10 would not encapsulate the sacrificial material 9, as taught and required by Loboda. Therefore, claim 14 and its dependencies are patentable over Loboda in all respects.

Applicants respectfully submit that claims 20 and 21 are also patentable over Loboda under 35 U.S.C. 102(e). Claim 20 is herein amended to include forming a gap between a portion of the airbridge and the first electrically insulative layer." As previously discussed, Loboda fails to teach, suggest, or motivate one to have a gap between a portion of the airbridge and the first electrically insulative layer. Therefore, Loboda must also fail to teach, suggest or motivate one

to form such a gap. For at least this reason claims 20 and 21 are allowable over Loboda in all regards, especially under 35 U.S.C. 102(e).

Applicants respectfully submit that claims 9 and 19 are patentable over Loboda under 35 U.S.C. 103(a). As previously discussed, independent claims 1 and 14 are not obvious over Loboda. Therefore, dependent claims 9 and 19 are also not allowable over Loboda under 35 U.S.C. 103(a) for the same reasons.

Applicants thank the Examiner for pointing out allowable subject matter, however for at least the reasons stated herein, Applicants respectfully submit that all claims of the present application contain allowable subject matter and are in condition for allowance. Such allowance is earnestly requested. Please contact Applicants' practitioner listed below if there are any issues regarding this communication or the current Application.

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(All pending claims are shown for completeness)

Cancel claims 4, and 22-33 without prejudice.

1 (Amended). An electronic component comprising:  
a substrate; and  
an airbridge located over the substrate and having at least a first layer and a second layer,  
wherein a first portion of the second layer is over the first layer,  
wherein:  
a gap exists between a portion of the airbridge and the substrate; and  
a thickness of the second layer is less than a combined thickness of the first layer  
and the gap;  
the airbridge is electrically conductive; and  
the first layer of the airbridge is less resistive than the second layer of the  
airbridge.

2 (Unchanged). The electronic component of claim 1 wherein:  
the second layer is a passivation layer.

3 (Unchanged). The electronic component of claim 1 wherein:  
the second layer is harder than the first layer.

5 (Unchanged). The electronic component of claim 4 wherein:  
the thickness of the second layer is less than fifty percent of the combined thickness of  
the first layer and the gap.

6 (Amended). The electronic component of claim 1 wherein:  
a second portion of the second layer is located underneath an edge of the first layer.

7 (Unchanged). The electronic component of claim 1 wherein:  
the second layer is absent underneath a center portion of a width of the airbridge.

8 (Unchanged). The electronic component of claim 1 wherein:  
a gap exists underneath a portion of the airbridge; and  
the gap is unsealed underneath the portion of the airbridge.

9 (Unchanged). The electronic component of claim 1 wherein:  
the second layer of the airbridge has a compressive stress level of approximately 0 to 200 MegaPascals.

10 (Unchanged). The electronic component of claim 1 wherein:  
the airbridge further comprises:

a third layer underneath the first layer; and  
the third layer is more resistive than the first layer.

11 (Unchanged). The electronic component of claim 10 wherein:  
the second layer is more resistive than the third layer.

12 (Unchanged). The electronic component of claim 1 wherein:  
the second layer of the airbridge is electrically conductive.

13 (Unchanged). The electronic component of claim 1 wherein:  
the second layer of the airbridge is electrically insulative.

14 (Amended) A semiconductor component comprising:  
a semiconductor substrate;  
a semiconductor device supported by the semiconductor substrate;  
a first electrically insulative layer overlying the semiconductor substrate and the semiconductor device; and  
an airbridge located over the semiconductor substrate, located over the first electrically insulative layer, and electrically coupled to the semiconductor device,  
wherein:  
a gap exists between a portion of the airbridge and the first electrically insulative layer;  
the airbridge has a first electrically conductive layer; and  
the airbridge has a second electrically insulative layer overlying the first electrically conductive layer.

15 (Amended) The semiconductor component of claim 14 wherein:  
[a gap exists between a portion of the airbridge and the first electrically insulative layer;]

the second electrically insulative layer is a passivation layer harder than the first electrically conductive layer; and

the airbridge further comprises:

an electrically conductive barrier layer located underneath the first electrically conductive layer and more resistive than the first electrically conductive layer.

16 (Unchanged) The semiconductor component of claim 15 wherein:  
a thickness of the second electrically insulative layer is less than fifty percent of a combined thickness of the electrically conductive barrier layer, the first electrically conductive layer, and the gap.

17 (Unchanged) The semiconductor component of claim 15 wherein:  
the second electrically insulative layer is devoid of sealing the gap underneath the portion of the airbridge.

18 (Unchanged) The semiconductor component of claim 14 wherein:  
the second electrically insulative layer is absent underneath a center portion of a width of the airbridge.

19 (Unchanged) The semiconductor component of claim 14 wherein:  
the second electrically insulative layer has a compressive stress level of approximately 100 MegaPascals.

20 (Amended). A method of manufacturing an electronic component comprising:  
providing a substrate;  
forming an electrically insulative layer over the substrate;  
forming a first layer over the [substrate] first electrically insulative layer to form a first portion of an airbridge; [and]  
forming a first portion of a second layer over the first layer to form a second portion of the airbridge over the substrate,  
wherein:  
the airbridge is electrically conductive; and  
the first layer of the airbridge is less resistive than the second layer of the airbridge; and  
forming a gap between the airbridge and the electrically insulative layer.

21 (Amended). The method of claim 20 further comprising:  
forming a semiconductor device at least partially located within the substrate; and  
[forming an electrically insulative layer over the substrate and the semiconductor device,]  
wherein:

forming the first layer further comprises:

providing the first layer comprised of an electrically conductive material;

[and]

forming the second layer further comprises:

providing the second layer comprised of an electrically insulative material;

and

forming the electrically insulative layer further comprises:

forming the electrically insulative layer over the semiconductor device.

34 (Amended). The method of claim 20 further comprising:  
designing the airbridge to have a design width,  
wherein:

forming the first layer further comprises:

forming the first layer to have a first layer width greater than the design  
width; and

forming the second layer further comprises:

forming a second portion of the second layer underneath edges of the first  
layer; and

keeping the second layer absent underneath a central portion of the first  
layer, the central portion of the first layer having the design width.